WHAT IS CLAIMED IS:

1. A method of analyzing data using a computer, said method comprising:

receiving raw data at said computer;

scaling said raw data using at least one scaling function that provides substantially linear transformations for data values proximal to zero and substantially logarithmic transformations for other data values to generate scaled data; and,

using said scaled data to identify portions of said raw data of interest.

2. The method of claim 1, wherein said raw data comprises high dynamic range data.

3. A method of analyzing flow cytometry data using a computer, said method comprising:

receiving raw data at said computer, said raw data comprising data from a plurality of light detectors of a flow cytometry system;

scaling said raw data in said computer using at least one scaling function that provides substantially linear transformations for data values proximal to zero and substantially logarithmic transformations for other data values to generate scaled data; and,

using said scaled data to identify portions of said raw data of interest.

4. The method of claim 3, wherein said scaling function transforms negative raw data values.

5. The method of claim 3, wherein a transition from linear to logarithmic scaling in said scaled data is substantially smooth.

6. The method of claim 3, wherein the second derivative of said scaling function is zero for a corresponding raw data value of zero.

7. The method of claim 3, wherein said scaling function comprises one or more optimization functions for viewing different raw data sets.

8. The method of claim 3, wherein said scaling function is substantially symmetrical proximal to a raw data value of zero.

9. The method of claim 3, wherein said flow cytometry system comprises a fluorescence-activated cell sorting flow cytometry system.

10. The method of claim 3, wherein said raw data is derived through fluorescence compensation.

11. The method of claim 3, wherein said scaling comprises specifying at least one preliminary parameter such that other variables are constrained by one or more criteria of said scaling function, thereby defining at least one single variable transformation.

12. The method of claim 11, wherein said single variable transformation comprises a family of related transformations.

13. The method of claim 3, wherein said using comprises inputting said scaled data into at least one data analysis algorithm to identify said portions of said raw data of interest.

14. The method of claim 13, wherein said data analysis algorithm comprises automated data analysis software.

15. The method of claim 3, wherein said using comprises displaying said scaled data for a human viewer.

16. The method of claim 15, wherein said scaled data is displayed on a coordinate grid and said scaling function primarily depends on data in a single data dimension, thereby assuring that said coordinate grid is substantially rectilinear.

17. The method of claim 15, wherein display values increase in size more than corresponding display variables in linear regions of said scaled data as a family-generating variable is adjusted to increase a range of linearity.

18. The method of claim 15, wherein said scaling function comprises at least one generalized hyperbolic sine function.

19. The method of claim 18, wherein said generalized hyperbolic sine function is a form of $V = Z(10^{n/m} - 1 - G^2(10^{-n/mG} - 1))$, where V is a data value to be displayed at channel position n in a plot of said scaled data, m is the asymptotic channels per decade, and G is linearization strength.

20. The method of claim 18, wherein said generalized hyperbolic sine function is a form of $V = a(e^x - p^2e^{-px} + p^2 - 1)$, where V is a data value to be plotted at display position x in a plot, a is a scaling factor, and p is linearization strength.

21. The method of claim 18, wherein said generalized hyperbolic sine function is a form of $S(x; a, b, c, d, So) = ae^{bx} - ce^{-dx} - So$, for positive x and for negative x, a reflection of said positive x in a form of Sref(x; a, b, c, d, So) = (x/absx) S(absx; a, b, c, d, So), where absx is the absolute value of variable x.

22. A computer program product comprising a computer readable medium having one or more logic instructions for

receiving raw data in a computer, said raw data comprising data from a plurality of light detectors of a flow cytometry system; and,

scaling said raw data using at least one scaling function that provides substantially linear transformations for data values proximal to zero and substantially logarithmic transformations for other data values to generate scaled data.

23. The computer program product of claim 22, wherein said computer readable medium comprises one or more of: a CD-ROM, a floppy disk, a tape, a flash memory device or component, a system memory device or component, a hard drive, or a data signal embodied in a carrier wave.

24. A system for analyzing flow cytometry data, comprising:

(a) at least one flow cytometer; and,

(b) at least one computer operably connected to said flow cytometer, said computer having system software comprising one or more logic instructions for:

receiving raw data in said computer, said raw data comprising data from a plurality of light detectors of a flow cytometry system; and

scaling said raw data using at least one scaling function that provides substantially linear transformations for data values proximal to zero and substantially logarithmic transformations for other data values to generate scaled data.

25. The system of claim 24, wherein said system software further comprises one or more logic instructions for displaying said scaled data for a human viewer.

26. The system of claim 24, wherein said system software further comprises one or more logic instructions for analyzing said scaled data to identify portions of said raw data of interest.